RECORDER

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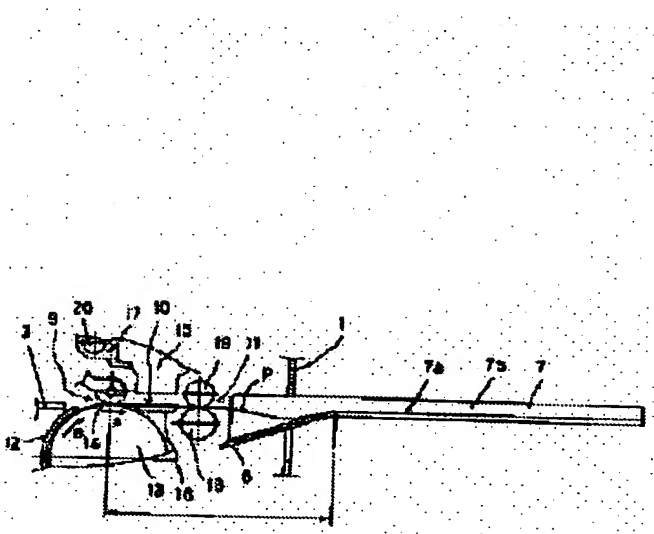
Abstract of **JP10129917**

PROBLEM TO BE SOLVED: To prevent interference between a recording medium and a recording unit after recording by providing a discharge holding member provided with a horizontal supporting unit arranged on the substantially same plane with the conveying direction and the discharging direction of the recording medium and arranging a penetration preventing member which is connected to the end part on the discharge means side of the horizontal supporting part and is inclined downward. SOLUTION: In a discharging action of a recording sheet P in an ink jet recording device, when the tip of the recording sheet P passes a discharge part 11, the tip, which is suspended because of its self-weight, is moved forward toward a horizontal supporting part 7a by means of guide of an inclined penetration preventing member 8. In this way, an image is recorded by means of a recording head 15 while the tip part of the recording sheet P is supported by means of the horizontal part 7a. According to the progress of image forming, the rear end of the recording sheet P passes the discharge part 11, and then, the rear end of the recording sheet P is dropped onto the penetration preventing member 8 because of conveyance by means of a discharge roller 18 and its self-weight so as to be hung along the inclination of the penetration preventing member 8, so that interference with the recording unit 10 is prevented.



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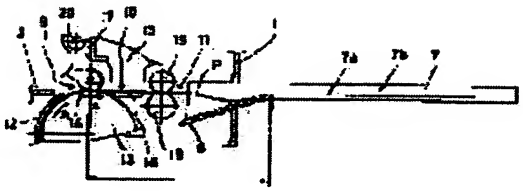
(54) RECORDER

(57)Abstract:

PROBLEM TO BE SOLVED: To prevent interference between a recording medium and a recording unit after recording by providing a discharge holding member provided with a horizontal supporting unit arranged on the substantially same plane with the conveying direction and the discharging direction of the recording medium and arranging a penetration preventing member which is connected to the end part on the discharge means side of the horizontal supporting part and is inclined downward.



SOLUTION: In a discharging action of a recording sheet P in an ink jet recording device, when the tip of the recording sheet P passes a discharge part 11, the tip, which is suspended because of its self-weight, is moved forward toward a horizontal supporting part 7a by means of guide of an inclined penetration preventing member 8. In this way, an image is recorded by means of a recording head 15 while the tip part of the recording sheet P is supported by means of the horizontal part 7a. According to the progress of image forming, the rear end of the recording sheet P passes the discharge part 11, and then, the rear end of the recording sheet P is dropped onto the penetration preventing member 8 because of conveyance by means of a discharge roller 18 and its self-weight so as to be hung along the inclination of the penetration preventing member 8, so that interference with the recording unit 10 is prevented.

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* NOTICES *

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3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] A conveyance means to convey a record medium, and a record means to record an image on said record medium according to image information, The eject direction of said record medium by discharge means to discharge the record medium after record, and the conveyance direction and said discharge means of said record medium in the part where record is carried out by said record means, and the discharge attachment component which has the level supporter arranged in an abbreviation same flat surface, The recording device which goes caudad succeeding the edge by the side of said discharge means of said level supporter, and is characterized by having the inclining invasion prevention member.
[Claim 2] Said level supporter is a recording device according to claim 1 characterized by being formed in respect of single.
[Claim 3] Said level supporter is a recording device according to claim 1 characterized by being formed on the discharge attachment component formed crosswise [of said record medium] continuously in respect of the plurality made to install in the conveyance direction of said record medium.
[Claim 4] Said level supporter is a recording device according to claim 1 to 3 characterized by crossing throughout the cross direction of said record medium, and being formed.
[Claim 5] The recording device according to claim 1 to 4 characterized by really fabricating said discharge attachment component and said invasion prevention member.
[Claim 6] The recording device according to claim 1 to 5 characterized by being shorter than the abbreviation one half of the conveyance direction die length of the record medium with the shortest conveyance lay length among the record media with which spacing of the nip section of the record medium by said conveyance means and the edge by the side of said discharge means of said level supporter may be used for said recording device.
[Claim 7] A conveyance means to convey a record medium, and a record means to record an image on said record medium according to image information, The eject direction of said record medium by discharge means to discharge the record medium after record, and the conveyance direction and said discharge means of said record medium in the part where record is carried out by said record means, and the discharge attachment component which has the level supporter arranged in an abbreviation same flat surface, The invasion prevention member which it is supported to revolve by the location of the edge by the side of said discharge means of said level supporter rotatable, and the top face was made to follow, The standby status switching means which switches the 2nd standby condition located in the same flat surface as the 1st standby condition which inclines caudad from said level supporter of this invasion prevention member, and said level supporter, The recording device characterized by having a storage means to record the information on said record medium, and the control means which controls said standby status switching means by information recorded on this storage means.
[Claim 8] Said level supporter is a recording device according to claim 7 characterized by being formed in respect of single.
[Claim 9] Said level supporter is a recording device according to claim 7 characterized by being formed on the discharge attachment component formed crosswise [of said record medium] continuously in respect of the plurality made to install in the conveyance direction of said record

medium.
[Claim 10] Said level supporter is a recording device according to claim 7 to 9 characterized by crossing throughout the cross direction of said record medium, and being formed.
[Claim 11] The recording device according to claim 7 to 10 which the information on said record medium is the size information on this record medium, and is characterized by being obtained by the sensor formed in the conveyance on the street of said record medium.
[Claim 12] The recording device according to claim 7 to 10 which the information on said record medium is the size information on said record medium, and is characterized by being obtained based on the information on the record medium by which input directions were carried out from the exterior.
[Claim 13] The recording device according to claim 7 to 10 which the information on said record medium is the passage information conveyance system on the street on said record medium, and is characterized by being obtained by the sensor formed in the conveyance on the street of said record medium.
[Claim 14] Said recording apparatus is a recording apparatus according to claim 1 to 13 characterized by being the ink jet recording method by which a record means records by breathing out ink according to a signal.
[Claim 15] Said recording device is a recording device according to claim 1 to 13 characterized by having the electric thermal-conversion object for a record means generating the heat energy for ink regurgitation.
[Claim 16] Said recording device is a recording device according to claim 1 to 13 with which a record means is characterized by making ink breathe out from a delivery with the heat energy impressed with said electric thermal-conversion object using film boiling produced in ink.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the recording device equipped with the discharge attachment component which supports the record medium to discharge further about recording devices, such as a printer, a word processor, a personal computer, and facsimile.
[0002]
[Description of the Prior Art] In recent years, in recording apparatus, such as a printer, a word processor, a personal computer, and facsimile, a record medium is intermittently conveyed in the predetermined direction, and the recording apparatus of the serial mold which records by operating the carriage which carried the ink jet recording head which is a record means in the record-medium conveyance direction and the direction of a right angle is developed and put in practical use.
[0003] After the discharge section of the record medium in the above-mentioned ink jet recording device holds the both ends outside the record section of the record medium for example, after record by the rail and record is completed, the equipment constituted so that spacing of a rail might be extended and a record medium might be stocked on a discharge tray is proposed.
[0004] Moreover, a configuration like JP,7-17033,A is proposed. This configuration once discharges the record sheet after record on a discharge tray, and moves a record sheet to a receipt tray from a discharge tray further. After an image is recorded on a previous record sheet by this before a next record sheet is loaded into this record sheet, time amount can be made to go through, and it has the effectiveness that there is no possibility of soiling a record image.
[0005]
[Problem(s) to be Solved by the Invention] However, as shown in the above-mentioned Prior art, by the approach of holding the both ends of a record medium by the rail, when the sizes of a record medium differed, the rail of both ends needed to be moved, and it needed to double with the size of a record medium, and while the configuration was complicated and became cost quantity, there was a problem that actuation became complicated.
[0006] Moreover, in a configuration like JP,7-17033,A, the discharge tray is arranged to the recording surface in the low location. Therefore, when a record medium with the powerful waist (rigidity) is conveyed and the back end section of a record medium passes the conveyance roller pair arranged at the Records Department upstream, a tip side will incline downward and a back end side will incline upward.
[0007] From this, the recording surface inclined, and was conveyed, and there was a problem that a record medium may contact a record means.
[0008]
[Means for Solving the Problem] A conveyance means to convey a record medium in order to solve the above-mentioned technical problem, and a record means to record an image on said record medium according to image information, The eject direction of said record medium by discharge means to discharge the record medium after record, and the conveyance direction and said discharge means of said record medium in the part where record is carried out by said record means, and the discharge attachment component which has the level supporter arranged in an abbreviation same flat surface, It goes caudad succeeding the edge by the side of said discharge means of said level supporter, and is characterized by having the inclining invasion prevention member.

[0009] At this time, it is desirable that it is shorter than the abbreviation one half of the conveyance direction die length of the record medium with the shortest conveyance lay length among the record media with which spacing of the nip section of the record medium by said conveyance means and the edge by the side of said discharge means of said level supporter may be used for said conveyance means.
[0010] Moreover, a conveyance means to convey a record medium and a record means to record an image on said record medium according to image information, The eject direction of said record medium by discharge means to discharge the record medium after record, and the conveyance direction and said discharge means of said record medium in the part where record is carried out by said record means, and the discharge attachment component which has the level supporter arranged in an abbreviation same flat surface, The invasion prevention member which it is supported to revolve by the location of the edge by the side of said discharge means of said level supporter rotatable, and the top face was made to follow, The standby status switching means which switches the 2nd standby condition located in the same flat surface as the 1st standby condition which inclines caudad from said level supporter of this invasion prevention member, and said level supporter, It is characterized by having a storage means to record the information on said record medium, and the control means which controls said standby status switching means by information recorded on this storage means.
[0011] Moreover, in the above-mentioned recording device, it is desirable to go across said level supporter throughout the cross direction of said record medium, and to form it.
[0012]
[Embodiment of the Invention]
The 1st operation gestalt of the recording device concerning this invention is explained to a detail using drawing below the [1st operation gestalt]. The recording apparatus shown in this operation gestalt is an ink jet recording apparatus which adopted the ink jet recording method. The appearance perspective view, drawing 2 , or drawing 5 of the recording device which drawing 1 requires for the 1st operation gestalt is the fragmentary sectional view of a recording device. Drawing in which drawing 2 shows the condition that the record sheet tip reached to the level supporter, drawing in which drawing 3 shows the condition that a record sheet runs a level supporter, drawing in which the record sheet back end shows the condition that drawing 4 passed the conveyance roller, and drawing 5 are drawings showing the condition that the record sheet was discharged by the level supporter.
[0013] The outline configuration of the ink jet recording apparatus which is the example of a recording apparatus is first explained using drawing 1 . It has the control panel 6 for setting covering 5, printing mode, etc. for protecting the recording head 15 which is a record means to mention later to the top face of the body 1 of equipment.
[0014] The manual paper feed base 3 for supporting special record sheet P, such as a record medium which the medium tray 2 for carrying out the loading receipt of the record sheet P under the front of the body 1 of equipment is attached, and has rigidity back, is formed. Moreover, the side guide 4 for regulating the location of the cross direction of this record sheet P is attached in the field loading record sheet P of the manual paper feed base 3.
[0015] Moreover, the discharge attachment component 7 holding record sheet P discharged above the front of the body 1 of equipment is formed, and the top face of this discharge attachment component 7 is set to level supporter 7a. Moreover, it is constituted so that the invasion prevention member 8 crooked caudad may be formed in the body 1 side of equipment of the discharge attachment component 7 and record sheet P discharged may not trespass upon the background of a discharge attachment component. Hereafter, the configuration of each part is explained using drawing 1 and drawing 2 .
[0016] (Conveyance means) When performing automatic feeding using the usual record sheet P, it is fed at a time with one record sheet P loaded into the medium tray 2 from the maximum bottom with the feed roller which is not illustrated, and it is conveyed in the direction of arrow-head B by rotation of the conveyance roller 13 which is a conveyance means, being guided to the guide 12 shown in drawing 2 .
[0017] The conveyance roller 13 rotates the specified quantity every by the drive of the conveyance motor which is not illustrated, conveys record sheet P in the direction of arrow-head A by co-

operation with the follower roller 14 energized with the spring which is not illustrated on this conveyance roller 13, and arrives at the Records Department 10. Let the nip section of this conveyance roller 13 and the follower roller 14 be the conveyance section 9.
[0018] Moreover, when feeding paper in manual bypass, record sheet P set to the manual paper feed base 3 will be cooperated with the conveyance roller 13 and the follower roller 14 by rotating the conveyance roller 13 in the direction of arrow-head A in the direction of arrow-head B with push a little, record sheet P will be further conveyed in the direction of arrow-head A, and it will convey to up to a platen 16.
[0019] (Record means) The Records Department 10 makes a recording head 15 and the platen 16 which supports record sheet P from a rear-face side counter, and is constituted. The ink jet recording method which records by carrying out the regurgitation of the ink to record sheet P is used for the recording head 15 which is the record means of the recording device concerning this example.
[0020] That is, this recording head 15 is equipped with an energy generation means to generate the liquid formation energy made to act on the liquid in the energy operation section prepared in a detailed liquid delivery (orifice), a liquid route, and a part of this liquid route, and this operation section.
[0021] Irradiate the electromagnetic wave of the record approach, laser, etc. using electric machine conversion objects, such as a piezo-electric element, as an energy-generation means generate such energy, make it generate heat, and there is the record approach using an energy-generation means heat a liquid and make a liquid breathe out with electric thermal-conversion objects, such as a heater element which has the record approach using an energy-generation means make a drop breathe out in the operation by outside generation of heat, or an exoergic resistor, etc.
[0022] Since the recording head used for the ink jet record approach of making a liquid breathing out with heat energy also in it can arrange the liquid delivery (orifice) for breathing out the drop for record and forming the drop for regurgitation to high density, it can record high resolution. Moreover, the recording head which used the electric thermal-conversion object as an energy generation means also in it is easy also for miniaturization, and the advance of a technique and the improvement in dependability in the latest semi-conductor field can utilize the advantage of remarkable IC technique or a micro processing technique more than enough, and high-density-assembly-izing is easy for it, and it is advantageous from a manufacturing cost being cheap.
[0023] the drive motor which is not illustrated in the direction which the recording head 15 is carried in carriage 17, and intersects perpendicularly with carriage 17 with the conveyance direction of record sheet P which is the direction of arrow-head A -- a round trip -- the guide shaft 20 for making it movable is established. And a recording head 15 is scanned crosswise [of record sheet P] to record sheet P conveyed on the platen 16 with the conveyance roller 13 and the follower roller 14, and an ink image is recorded.
[0024] Moreover, the recording head 15 is movable so that the distance of the field which counters record sheet P of a recording head, and the recording surface of record sheet P can keep it suitable corresponding to the thickness of record sheet P.
[0025] (Discharge means) The discharge roller 18 which is a discharge means to rotate by the conveyance motor which is not illustrated with the conveyance roller 13 is formed in the downstream of the Records Department 10. It is energized by the discharge roller 18 with the spring which a spur 19 does not illustrate to this discharge roller 18, and it is constituted so that it may follow to a discharge roller 18. A discharge roller 18 and a spur 19 cooperate, and they discharge record sheet P on level supporter 7a of the discharge attachment component 7, without soiling the recording surface of record sheet P by which record was carried out. Let the nip section of this discharge roller 18 and a spur 19 be the discharge section 11.
[0026] The discharge attachment component 7 is a thing for holding record sheet P discharged by the discharge section 11, and it arranges level supporter 7a so that the conveyance direction of record sheet P in the Records Department 10 and the eject direction of record sheet P by the discharge section 11 may spread abbreviation etc. and may become. This level supporter 7a is a field which crosses throughout the cross direction of record sheet P, and is formed, and also when record sheet P of various width of face is discharged, it has the composition that this record sheet P can be held, without a location making it change crosswise.

[0027] Moreover, as for the distance L from the conveyance section 9 to the discharge section 11 side-edge section of level supporter 7a, it is desirable to set up shorter than the abbreviation one half of the conveyance direction die length of record sheet P with the shortest conveyance lay length among record sheet P of specification within the limits. For example, when record sheet P with a die length of 150mm is the shortest record sheet of specification within the limits, as for distance L, it is desirable to set up shorter than 75mm. This is for preventing lifting of the back end section of record sheet P generated in order that the tip of record sheet P may not reach level supporter 7a, when record sheet P is too short and the back end of record sheet P passes the conveyance section 9.
[0028] Discharge side-guide 7b is prepared in both the sides of the discharge attachment component 7, and it is a thing for preventing that record sheet P shifts crosswise and falls. Moreover, the invasion prevention member 8 which has the inclined plane which descends toward the discharge section 11 from this edge is attached in the edge by the side of the discharge section 11 of the discharge attachment component 7, and it is constituted so that the point of record sheet P may hang down at the time of discharge and it may not trespass upon the background of level supporter 7a.
[0029] Next, discharge actuation of record sheet P in an ink jet recording device is explained using drawing 2 thru/or drawing 5 . Record sheet P is a sheet with the weak waists, such as a regular paper.

[0030] In the condition that the tip of record sheet P passed the discharge section 11 as shown in drawing 2 , although the tip hangs down with a self-weight, it advances to level supporter 7a with guidance of the invasion prevention member 8. And record of an image advances, the point of record sheet P being supported by level supporter 7a as shown in drawing 3 .
[0031] When record of an image furthermore advances, as shown in drawing 4 , the back end of record sheet P will pass the conveyance section 9, and the back end of record sheet P will lose the regulation on the upper part. However, since the Records Department 10, the discharge section 11, and level supporter 7a are arranged in the abbreviation same flat surface, it is possible to continue record, without the back end of record sheet P inclining.
[0032] As shown in drawing 5 after that, when the back end of record sheet P passes the discharge section 11, the back end section of record sheet P will fall on the invasion prevention member 8 with conveyance and the self-weight by the discharge roller 18, and will hang down along the inclination of the invasion prevention member 8.
[0033] and the case where the following record sheet P has been discharged continuously -- the above and ** -- since it is discharged like, time amount is taken for the tip of record sheet P discharged behind to contact the recording surface of record sheet P discharged previously, and while the ink of record sheet P discharged previously gets dry can be given.
[0034] The effectiveness which makes it possible to continue record can be acquired without [without the back end of record sheet P is raised also after the back end of record sheet P passes the conveyance section 9 by constituting like the above, therefore] worsening interference and record precision of record sheet P and the Records Department 10.
[0035] Moreover, it became possible to prevent soiling the recording surface of record sheet P which was previously discharged by the tip of record sheet P discharged behind, and was loaded on the discharge attachment component 7.
[0036] Moreover, justification of the discharge attachment component 7 according to record sheet P of various width of face became unnecessary, and the effectiveness of raising versatility and operability was acquired.
[0037] Moreover, even if it was the discharge attachment component 7 equipped with level supporter 7a which was in the discharge section 11, abbreviation, etc. by carrying out, and was formed in height, in record sheet P with the weak waists, such as a regular paper, the effectiveness that the discharge stack to the discharge attachment component 7 top became possible was acquired.
[0038] In addition, a regular paper etc. is the case of record sheet P with the weak waist, and in the discharge of record sheet P with the strong waist, discharge of record sheet P ends the discharge actuation of record sheet P mentioned above, without the point of record sheet P and the back end section hanging down occurring. That is, it will extrude in this case at the tip of record sheet P of consecutiveness in the back end section of record sheet P discharged previously, or one record sheet P will be youthfully removed at a time from the discharge attachment component 7. However, the

effectiveness same with having mentioned above can be acquired about points other than the discharge stack to the discharge attachment component 7 top.
[0039] Moreover, although the discharge attachment component 7 and the invasion prevention member 8 were constituted from an another member in the configuration mentioned above, the same effectiveness can be acquired even if it makes it the configuration which really fabricates two members and is used as the same member.
[0040] The [2nd operation gestalt], next the 2nd operation gestalt of an ink jet recording device are explained using drawing 6 thru/or drawing 9 . The outline configuration of an ink jet recording device attaches the sign are the same as that of the 1st operation gestalt, and same about the part which explanation overlaps, uses explanation, and explains it focusing on the configuration of a discharge means. A sectional view in case drawing 6 has the invasion prevention member of the recording device concerning the 2nd operation gestalt in the 1st standby condition, A sectional view in case drawing 7 has the invasion prevention member of the recording device concerning the 2nd operation gestalt in the 2nd standby condition, The flow chart with which drawing 8 shows the change sequence of a standby condition, and drawing 9 are drawings showing the contents of the table registered as a record sheet with which the invasion prevention member concerning the 2nd operation gestalt is set as the 1st standby condition.
[0041] The discharge attachment component 21 holding record sheet P discharged above the front is formed in the recording device concerning this example. Although this discharge attachment component 21 has accomplished the same configuration as the discharge attachment component 7 and abbreviation shown in the above-mentioned 1st operation gestalt, in a point equipped with center-of-rotation 21c into which the revolving shaft 23 used as the center of rotation of the invasion prevention member 22 mentioned later fits, it is different.
[0042] The invasion prevention member 22 is an abbreviation tabular member arranged at the body 1 side of equipment of the discharge attachment component 21, and is supported to revolve by this discharge attachment component 21 rotatable with the revolving shaft 23 by which fitting was carried out to center-of-rotation 21c. Moreover, the standby status switching member 24 which makes a revolving shaft 25 the center of rotation under the invasion prevention member 22 is formed. The standby status switching member 24 can switch a location by operating as a cam, rotating the invasion prevention member 22 by operation section 24a, and supporting by making it rotate by rotation of the change motor which does not illustrate the drive gear 26 constituted by one.
[0043] The invasion prevention member 22 is considered as the configuration which switches from level supporter 21a to the 1st standby condition which inclines caudad, and the 2nd standby condition supported at level supporter 21a and an abbreviation horizontal by the above-mentioned configuration. That is, when it is in the 1st standby condition, it can prevent that record sheet P trespasses upon the background of level supporter 21a like the above-mentioned 1st operation gestalt. Moreover, when it is in the 2nd standby condition, the Records Department 10, the discharge section 11, and the invasion prevention member 22 will be arranged in an abbreviation same flat surface, and it will be arranged so that the invasion prevention member 22 may extend level supporter 21a.
[0044] Next, discharge actuation of record sheet P in the body 1 of equipment concerning this example is explained using drawing 6 and drawing 7 .
[0045] As shown in drawing 6 , when the invasion prevention member 22 is in the 1st standby condition, the invasion prevention member 22 is in the condition that the 1st operation gestalt described, and the same condition. Therefore, it is the same as that of the actuation stated with the 1st operation gestalt about discharge actuation, and the same effectiveness can be acquired.
[0046] Moreover, since it is arranged so that the tip of the invasion prevention member 22 may approach the discharge section 11 and the Records Department 10, the discharge section 11, and the invasion prevention member 22 may serve as an abbreviation same flat surface when the invasion prevention member 22 is in the 2nd standby condition, as shown in drawing 7 , it will be discharged, without the point of record sheet P hanging down.
[0047] Here, in the above-mentioned 1st operation gestalt, in order to prevent raising the back end section of record sheet P when the tip of record sheet P does not reach level supporter 7a, distance L was set up among record sheet P of specification within the limits shorter than the abbreviation one

half of the conveyance direction die length of record sheet P with the shortest conveyance lay length. However, it became possible by coming, whenever it is shown in this example, and making it a configuration to set distance L as arbitration.

[0048] Next, standby status switching actuation of the invasion prevention member 22 is explained using drawing 8 and drawing 9 .

[0049] If the input directions of the record directions instruction are carried out from the host computer which is not illustrated, the standby status switching sequence of drawing 8 will be started. In step S1, decision whether the record sheet by which input directions were carried out as a record sheet is a record sheet which may set the standby condition of the invasion prevention member 22 as the 1st standby condition, or was beforehand registered as it is a record sheet with the die length of the one half of the conveyance direction die length of a record sheet longer than distance L (drawing 9) is carried out.

[0050] When it is judged that it is the record sheet registered by step S1, it shifts to step S2. In step S2, decision whether the invasion prevention member 22 is in the 1st standby condition is carried out. And when it is judged that the invasion prevention member 22 is in the 1st standby condition in step S2, a standby status switching sequence is ended.

[0051] When the invasion prevention member 22 is judged not to be in the 1st standby condition by step S2, after shifting to step S3, rotating the standby status switching member 24 by the drive of the change motor which is not illustrated and switching the invasion prevention member 22 to the 1st standby condition, a standby status switching sequence is ended.

[0052] Since an image recording activity is started by after an appropriate time and the invasion prevention member 22 is in the location of the 1st standby condition, discharge actuation of a **** single string stated with the above-mentioned 1st operation gestalt is carried out.

[0053] Moreover, when it is judged that it is not the record sheet registered by step S1, it shifts to step S4. Decision whether the invasion prevention member 22 is in the 2nd standby condition in step S4 is carried out, and when this invasion prevention member 22 is judged to be in the 2nd standby condition, a standby status switching sequence is completed.

[0054] When the invasion prevention member 22 is judged not to be in the 2nd standby condition by step S4, after shifting to step S5, rotating the standby status switching member 24 by the drive of the change motor which is not illustrated and switching the invasion prevention member 22 to the 2nd standby condition, a standby status switching sequence is ended.

[0055] An image recording activity is started by after an appropriate time, and a series of actuation to discharge actuation is carried out in the condition that the invasion prevention member 22 is in the location of the 2nd standby condition.

[0056] As explained above, the recording device concerning this example can switch the distance L of the discharge section 11 and level supporter 21a by having made it possible to switch the standby condition of the invasion prevention member 22. While being able to acquire the same effectiveness as the 1st operation gestalt by this, also when the die length of the one half of the conveyance direction die length of record sheet P is shorter than distance L and the back end of this record sheet P passes the conveyance section 9, the tip of record sheet P can be supported, and it can prevent raising the back end section of record sheet P.

[0057] The effectiveness which makes possible what is recorded without causing interference of record sheet P and the Records Department 10, or worsening record precision after the back end of record sheet P passes the conveyance section 9 by this was acquired.

[0058] In the 2nd operation gestalt of the [3rd operation gestalt] above, the record sheet which may set the standby condition of the invasion prevention member 22 as the 1st standby condition is registered beforehand, and the standby condition of the invasion prevention member 22 was switched by comparing the record sheet by which input directions were carried out with this. However, it is good also as a configuration which forms the sensor 27 which is conveyance system on the street [of record sheet P], and is not illustrated from the conveyance section 9 to the conveyance direction upstream, measures the die length from the tip of record sheet P to the back end by this sensor 27, and switches the standby condition of the invasion prevention member 22 by the comparison with a measurement result and distance L.

[0059] Moreover, the invasion prevention member 22 is usually set as the 1st standby condition, and

when the above-mentioned sensor 27 detects the back end of record sheet P, as same also as a configuration which switches the invasion prevention member 22 to the 2nd standby condition, and switches the invasion prevention member 22 to the 1st standby condition again after a change and the completion of discharge actuation the effectiveness as the 2nd operation gestalt can be obtained.
[0060] In addition, although center-of-rotation 21c into which the revolving shaft 23 used as the center of rotation of the invasion prevention member 22 fits was prepared in the discharge attachment component 21 with the above-mentioned 2nd operation gestalt, even if it prepares this in the body of an ink jet recording device, it is natural. [of the ability of the same effectiveness to be acquired]
[0061] In each operation gestalt to the [4th operation gestalt] ****, although the discharge attachment component 7 and the level supporters 7a and 21a formed on 21 were explained as a single flat surface, even if it is the thing of the shape of two or more rib installed crosswise [of a record sheet] and forms the level supporters 7a and 21a, the same effectiveness can be acquired. It is necessary to make spacing of the level supporters 7a or 21a smaller than the width of face of the record sheet of the minimum width of face with which the ink jet recording device corresponds at this time. In addition, of course, spacing of the level supporters 7a or 21a does not need to be uniform.
[0062]
[Effect of the Invention] According to this invention, by the cheap and easy configuration, even after the back end of a record medium passed the nip section of a conveyance roller and its follower roller, the effectiveness of becoming possible to record on a record medium was acquired, without worsening interference and record precision of a record medium and a record means. Moreover, the effectiveness of prevention of the record medium discharged succeeding the record medium previously discharged on the discharge attachment component contacting, and soiling a recording surface having been attained, and becoming possible over the overall length of various record media to maintain high image grace was acquired.
[0063] Moreover, when it was a record medium with the weak waist, the effectiveness of becoming possible to carry out a stack to up to a discharge attachment component in addition to the above-mentioned effectiveness was acquired.
[0064] Moreover, since a record-medium back face crossed throughout the cross direction of a record medium and was formed, the effectiveness of it having become unnecessary to justify the crosswise discharge attachment component according to the record medium of various width of face, and raising versatility and operability was acquired.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the appearance perspective view of the recording device concerning the 1st operation gestalt.
[Drawing 2] A record sheet tip is the fragmentary sectional view showing the condition of having reached to the level supporter.
[Drawing 3] A record sheet is the fragmentary sectional view showing the condition of going on a level supporter.
[Drawing 4] The record sheet back end is the fragmentary sectional view showing the condition of having passed the conveyance roller.
[Drawing 5] A record sheet is drawing showing the condition of having been discharged by the level supporter.
[Drawing 6] It is a sectional view in case the invasion prevention member of the recording device concerning the 2nd operation gestalt is in the 1st standby condition.
[Drawing 7] It is a sectional view in case the invasion prevention member of the recording device concerning the 2nd operation gestalt is in the 2nd standby condition.
[Drawing 8] It is the flow chart which shows the change sequence of the standby condition of an invasion prevention member.
[Drawing 9] The invasion prevention member in the 2nd operation gestalt is drawing showing the contents of the table registered as a record sheet set as the 1st standby condition.
[Description of Notations]
L -- Distance
P -- Record sheet
1 -- Body of Equipment
2 -- Medium Tray
3 -- Feed Base
4 -- Side Guide
5 -- Covering
6 -- Control Panel
7 21 -- Discharge Attachment Component
7a, 21a -- Level supporter
7b -- Discharge side guide
8 22 -- Invasion Prevention Member
9 -- Conveyance Section
10 -- Records Department
11 -- Discharge Section
12 -- Guide
13 -- Conveyance Roller
14 -- Follower Roller
15 -- Recording Head
16 -- Platen
17 -- Carriage
18 -- Discharge Roller

19 -- Spur
20 -- Guide Shaft
21c -- Center of rotation
23 -- Revolving Shaft
24 -- Standby Status Switching Member
24a -- Operation section
25 -- Revolving Shaft
26 -- Drive Gear
27 -- Sensor

[Translation done.]

* NOTICES *

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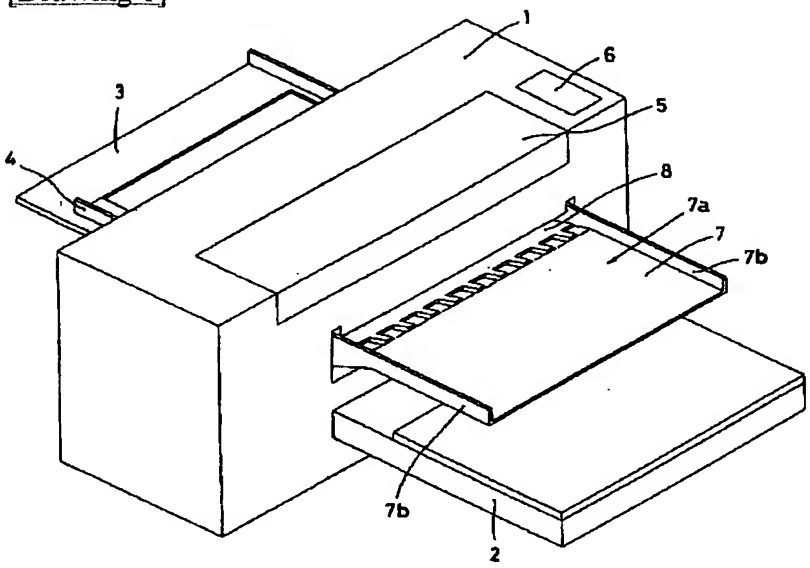
3.In the drawings, any words are not translated.

DRAWINGS

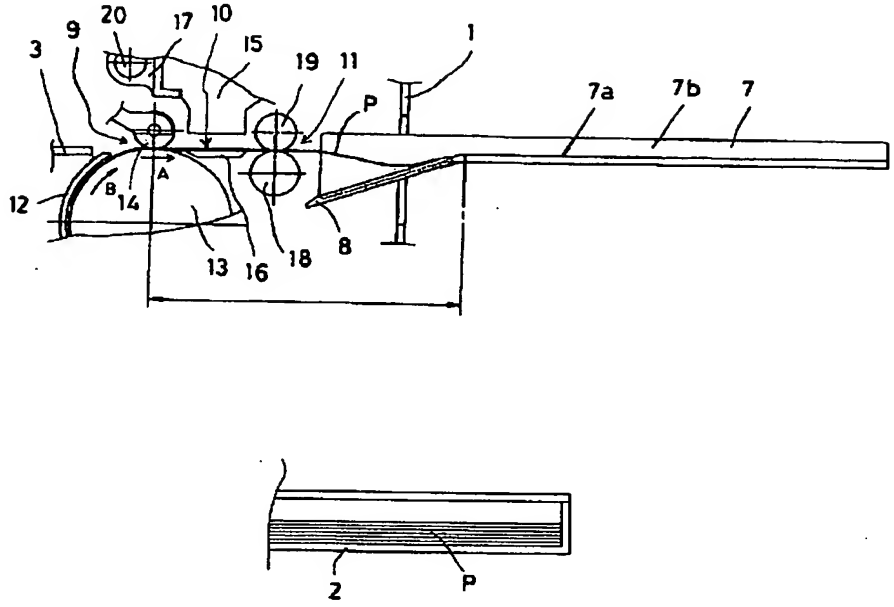
[Drawing 1]



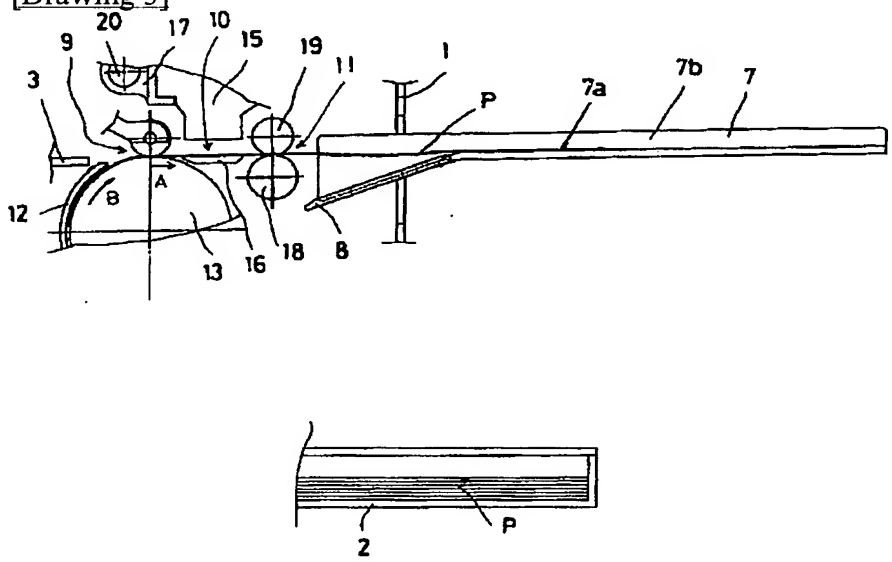
[Drawing 9]

登録シート
A3 縦
A4 縦・横
B4 縦
A5 縦・横
LETTER 縦・横
LEGAL 縦

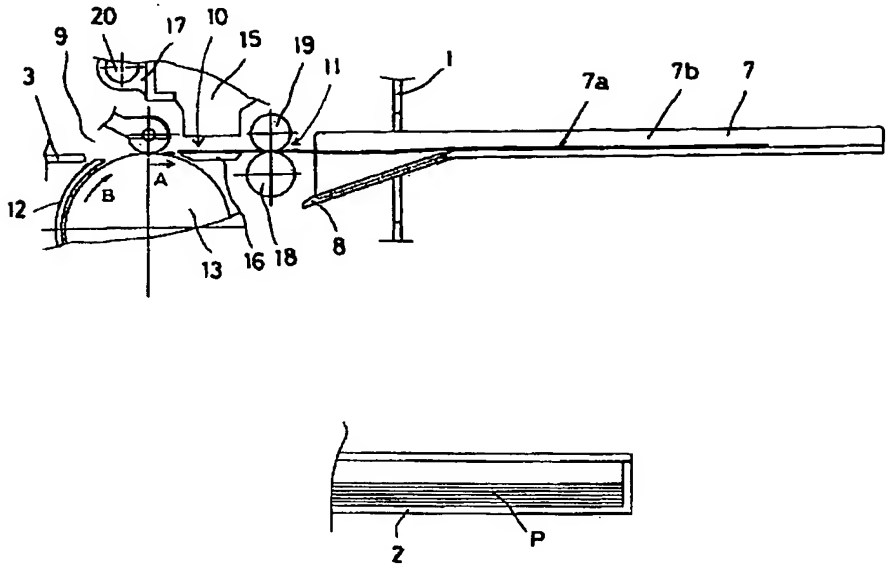
[Drawing 2]



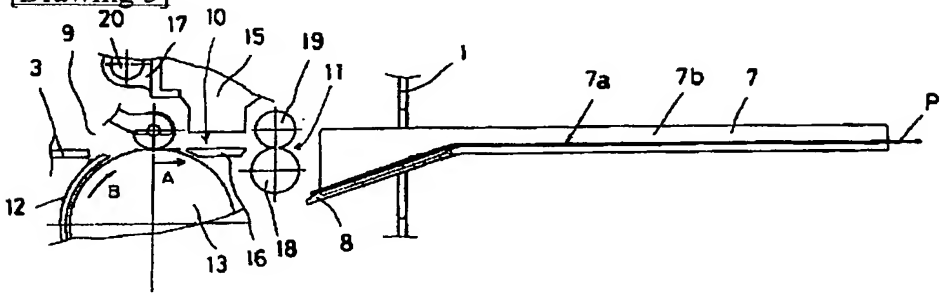
[Drawing 3]

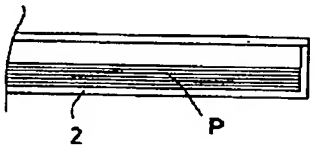


[Drawing 4]

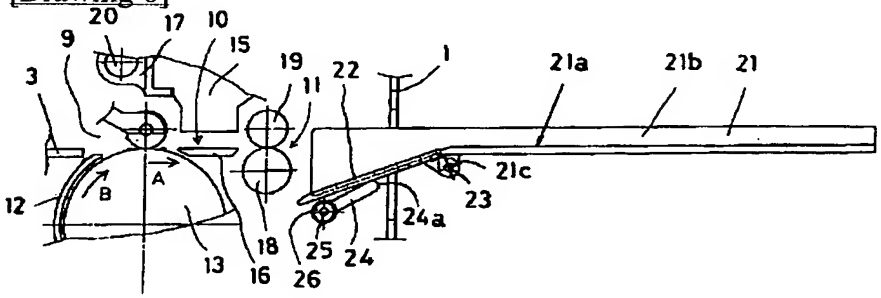


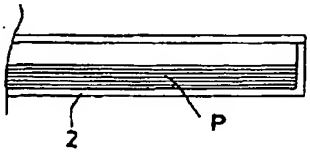
[Drawing 5]



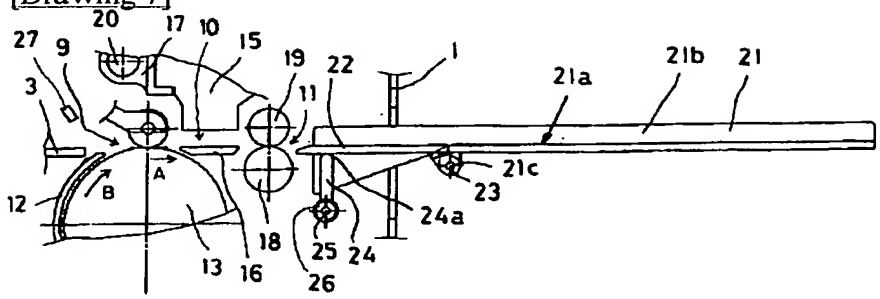


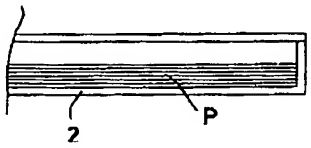
[Drawing 6]



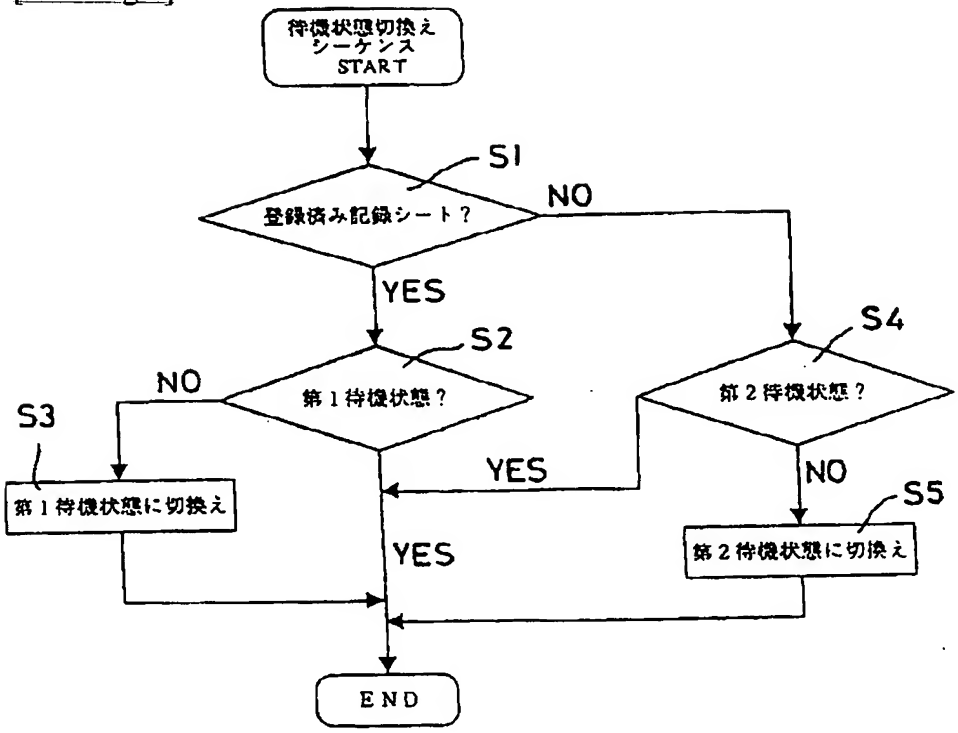


[Drawing 7]





[Drawing 8]



[Translation done.]

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Ｂ４１Ｊ　13/00		Ｂ４１Ｊ　13/00	
13/10		13/10	
Ｂ６５Ｈ　31/26		Ｂ６５Ｈ　31/26	

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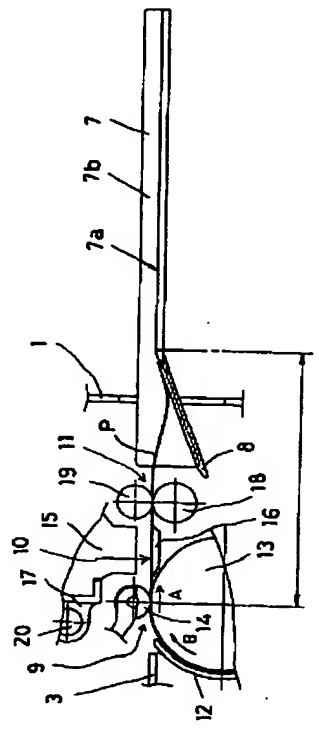
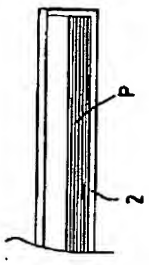
(54)【発明の名称】　記録装置

(57)【要約】

【課題】　排出された記録媒体の両端をレールで保持する方法では、両端のレールを記録媒体のサイズに合わせて移動させる必要があり、又、排出した記録媒体を落下させて積載した場合には、記録媒体の後端部が記録部上流側に配置された搬送ローラ対を通過すると上方向に傾斜し、記録精度が悪化するという問題があった。

【解決手段】　記録媒体を搬送する搬送手段と、画像情報に応じて前記記録媒体に像を記録する記録手段と、記録後の記録媒体を排出する排出手段と、前記記録手段により記録が実施される箇所における前記記録媒体の搬送方向および前記排出手段による前記記録媒体の排出方向と略同一平面内に配置された水平支持部を有する排出保持部材と、前記水平支持部の前記排出手段側の端部に連続し且つ下方に向かって傾斜する侵入防止部材とを備えたことを特徴とする。





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【特許請求の範囲】

【請求項１】　記録媒体を搬送する搬送手段と、
画像情報に応じて前記記録媒体に像を記録する記録手段と、
記録後の記録媒体を排出する排出手段と、
前記記録手段により記録が実施される箇所における前記記録媒体の搬送方向および前記排出手段による前記記録媒体の排出方向と略同一平面内に配置された水平支持部を有する排出保持部材と、
前記水平支持部の前記排出手段側の端部に連続し且つ下方に向かって傾斜する侵入防止部材とを備えたことを特徴とする記録装置。

【請求項２】　前記水平支持部は、単一面で形成されていることを特徴とする請求項１に記載の記録装置。

【請求項３】　前記水平支持部は、前記記録媒体の幅方向に連続的に形成された排出保持部材上に、前記記録媒体の搬送方向に並設させた複数の面で形成されていることを特徴とする請求項１記載の記録装置。

【請求項４】　前記水平支持部は、前記記録媒体の幅方向の全域に渡って形成されていることを特徴とする請求項１乃至請求項３のいずれかに記載の記録装置。

【請求項５】　前記排出保持部材と前記侵入防止部材が一体成形されていることを特徴とする請求項１乃至請求項４のいずれかに記載の記録装置。

【請求項６】　前記搬送手段による記録媒体のニップ部と前記水平支持部の前記排出手段側の端部との間隔が、前記記録装置に使用され得る記録媒体の内、搬送方向の長さが最も短い記録媒体の搬送方向長さの略半分より短いことを特徴とする請求項１乃至請求項５のいずれかに記載の記録装置。

【請求項７】　記録媒体を搬送する搬送手段と、
画像情報に応じて前記記録媒体に像を記録する記録手段と、
記録後の記録媒体を排出する排出手段と、
前記記録手段により記録が実施される箇所に於ける前記記録媒体の搬送方向および前記排出手段による前記記録媒体の排出方向と略同一平面内に配置された水平支持部を有する排出保持部材と、
前記水平支持部の前記排出手段側の端部の位置に回動可能に軸支され且つ上面を連続させた侵入防止部材と、
該侵入防止部材の前記水平支持部から下方に傾斜する第１の待機状態と前記水平支持部と同一平面に位置する第２の待機状態とを切換える待機状態切換え手段と、
前記記録媒体の情報を記録する記憶手段と、
該記憶手段に記録された情報により前記待機状態切換え手段を制御する制御手段とを備えたことを特徴とする記録装置。

【請求項８】　前記水平支持部は、単一面で形成されていることを特徴とする請求項７に記載の記録装置。

【請求項９】　前記水平支持部は、前記記録媒体の幅方向に連続的に形成された排出保持部材上に、前記記録媒体の搬送方向に並設させた複数の面で形成されていることを特徴とする請求項７に記載の記録装置。

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【請求項１０】　前記水平支持部は、前記記録媒体の幅方向の全域に渡って形成されていることを特徴とする請求項７乃至請求項９のいずれかに記載の記録装置。

【請求項１１】　前記記録媒体の情報とは該記録媒体のサイズ情報であって、前記記録媒体の搬送路上に設けたセンサーにより得られることを特徴とする請求項７乃至請求項１０のいずれかに記載の記録装置。

【請求項１２】　前記記録媒体の情報とは前記記録媒体のサイズ情報であって、外部より入力指示された記録媒体の情報に基づいて得られることを特徴とする請求項７乃至請求項１０のいずれかに記載の記録装置。

【請求項１３】　前記記録媒体の情報とは前記記録媒体の搬送系路上の通過情報であって、前記記録媒体の搬送路上に設けたセンサーにより得られることを特徴とする請求項７乃至請求項１０のいずれかに記載の記録装置。

【請求項１４】　前記記録装置は、記録手段が信号に応じてインクを吐出して記録を行うインクジェット記録方式であることを特徴とする請求項１乃至請求項１３のいずれかに記載の記録装置。

【請求項１５】　前記記録装置は、記録手段がインク吐出用の熱エネルギーを発生するための電気熱変換体を備えていることを特徴とする請求項１乃至請求項１３のいずれかに記載の記録装置。

【請求項１６】　前記記録装置は、記録手段が前記電気熱変換体によって印加される熱エネルギーにより、インクに生ずる膜沸騰を利用して吐出口よりインクを吐出させることを特徴とする請求項１乃至請求項１３のいずれかに記載の記録装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、プリンター、ワープロ、パーソナルコンピュータ、ファクシミリなどの記録装置に関し、更には、排出する記録媒体を支持する排出保持部材を備えた記録装置に関するものである。

【０００２】

【従来の技術】近年、プリンター、ワープロ、パーソナルコンピュータ、ファクシミリ等の記録装置に於いては、記録媒体を所定方向に間欠的に搬送し、記録手段であるインクジェット記録ヘッドを搭載したキャリッジを記録媒体搬送方向と直角方向に操作して記録を行うシリアル型の記録装置が開発され実用化されている。

【０００３】上記インクジェット記録装置に於ける記録媒体の排出部は、例えば、記録後の記録媒体の記録領域外の両端をレールで保持して、記録が終了すると、レールの間隔を広げて記録媒体を排出トレイにストックするように構成した装置が提案されている。

【０００４】又、特開平７－１７０３３号の様な構成が

提案されている。該構成は、記録後の記録シートを一旦排出トレイに排出し、更に記録シートを排出トレイから収納トレイに移動させるものである。これにより先の記録シートに画像が記録されてから、該記録シートに後の記録シートが積載されるまでに時間を経過させることができ、記録画像を汚す虞が無いという効果を有している。

【０００５】

【発明が解決しようとする課題】しかしながら、上記従来の技術に示す如く記録媒体の両端をレールで保持する方法では、記録媒体のサイズが異なった場合に両端のレールを移動させて記録媒体のサイズに合わせる必要があり、構成が複雑でコスト高になると共に操作が煩雑になるという問題があった。

【０００６】又、特開平７－１７０３３号の様な構成の場合には、記録面に対し排出トレイが低い位置に配置されている。従って腰（剛性）が強い記録媒体を搬送した場合に、記録媒体の後端部が記録部上流側に配置された搬送ローラ対を通過すると、先端側が下方向に傾斜し、後端側は上方向に傾斜することとなる。

【０００７】このことから記録面が傾斜して搬送されてしまったり、記録手段に記録媒体が当接してしまう場合があるという問題があった。

【０００８】

【課題を解決するための手段】上記課題を解決するために、記録媒体を搬送する搬送手段と、画像情報に応じて前記記録媒体に像を記録する記録手段と、記録後の記録媒体を排出する排出手段と、前記記録手段により記録が実施される箇所における前記記録媒体の搬送方向および前記排出手段による前記記録媒体の排出方向と略同一平面内に配置された水平支持部を有する排出保持部材と、前記水平支持部の前記排出手段側の端部に連続し且つ下方に向かって傾斜する侵入防止部材とを備えたことを特徴とする。

【０００９】この時、前記搬送手段による記録媒体のニップ部と前記水平支持部の前記排出手段側の端部との間隔が、前記搬送手段に使用され得る記録媒体の内、搬送方向の長さが最も短い記録媒体の搬送方向長さの略半分より短いことが望ましい。

【００１０】また、記録媒体を搬送する搬送手段と、画像情報に応じて前記記録媒体に像を記録する記録手段と、記録後の記録媒体を排出する排出手段と、前記記録手段により記録が実施される箇所に於ける前記記録媒体の搬送方向および前記排出手段による前記記録媒体の排出方向と略同一平面内に配置された水平支持部を有する排出保持部材と、前記水平支持部の前記排出手段側の端部の位置に回動可能に軸支され且つ上面を連続させた侵入防止部材と、該侵入防止部材の前記水平支持部から下方に傾斜する第１の待機状態と前記水平支持部と同一平面に位置する第２の待機状態とを切換える待機状態切換え手段と、前記記録媒体の情報を記録する記憶手段と、該記憶手段に記録された情報により前記待機状態切換え手段を制御する制御手段とを備えたことを特徴とする。

【００１１】また、上記記録装置に於いて、前記水平支持部を前記記録媒体の幅方向の全域に渡って形成することが望ましい。

【００１２】

【発明の実施の形態】

［第１実施形態］以下、本発明に係る記録装置の第１実施形態を図を用いて詳細に説明する。本実施形態に示す記録装置はインクジェット記録方式を採用したインクジェット記録装置であって、図１は第１実施形態に係る記録装置の外観斜視図、図２乃至図５は記録装置の部分断面図であって、図２は記録シート先端が水平支持部へ到達した状態を示す図、図３は記録シートが水平支持部を進行する状態を示す図、図４は記録シート後端が搬送ローラを通過した状態を示す図、図５は記録シートが水平支持部に排出された状態を示す図である。

【００１３】まず図１を用いて記録装置の例であるインクジェット記録装置の概略構成について説明する。装置本体１の上面には後述する記録手段である記録ヘッド15を保護するためのカバー５、および印字モードなどを設定するための操作パネル６を有している。

【００１４】装置本体１の前方の下方には記録シートＰを積載収納するための給紙トレイ２が取り付けられ、また後方には剛性を有する記録媒体等の特殊な記録シートＰを支持するための手差し給紙台３が設けられている。また、手差し給紙台３の記録シートＰを積載する面には該記録シートＰの幅方向の位置を規制するためのサイドガイド４が取り付けられている。

【００１５】また、装置本体１の前方の上方には排出した記録シートＰを保持する排出保持部材７が設けられており、該排出保持部材７の上面を水平支持部７ａとしている。また排出保持部材７の装置本体１側に下方に屈曲した侵入防止部材８を設けて、排出される記録シートＰが排出保持部材の裏側に侵入しないよう構成されている。以下、各部の構成について図１、図２を用いて説明する。

【００１６】（搬送手段）通常の記録シートＰを用いて自動給紙を行う場合、給紙トレイ２に積載された記録シートＰは、図示しない給送ローラによって最上側より１枚ずつ給送され、図２に示すガイド12にガイドされながら搬送手段である搬送ローラ13の回転により矢印Ｂ方向に搬送される。

【００１７】搬送ローラ13は図示しない搬送モータの駆動により所定量ずつ回転され、該搬送ローラ13に図示しないバネにより付勢された従動ローラ14との協動により記録シートＰを矢印Ａ方向に搬送し、記録部10に到達する。この搬送ローラ13と従動ローラ14とのニップ部を、搬送部９とする。

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【００１８】また、手差しにて給紙する場合には、手差し給紙台３にセットした記録シートＰを、矢印Ａ方向に若干押しながら搬送ローラ13を矢印Ｂ方向へ回転させることにより、搬送ローラ13と従動ローラ14で協動して記録シートＰをさらに矢印Ａ方向へ搬送し、プラテン16上へ搬送することとなる。

【００１９】（記録手段）記録部10は、記録ヘッド15と、記録シートＰを裏面側より支持するプラテン16とを対向させて構成されている。本実施例に係る記録装置の記録手段である記録ヘッド15は、記録シートＰへインクを吐出することにより記録を実施するインクジェット記録方式を用いている。

【００２０】即ち、この記録ヘッド15は微細な液体吐出口（オリフィス）、液路およびこの液路の一部に設けられたエネルギー作用部と、該作用部にある液体に作用させる液体形成エネルギーを発生するエネルギー発生手段を備えている。

【００２１】このようなエネルギーを発生するエネルギー発生手段としては、ピエゾ素子等の電気機械変換体を用いた記録方法、レーザ等の電磁波を照射して発熱させ、外発熱による作用で液滴を吐出させるエネルギー発生手段を用いた記録方法、あるいは、発熱抵抗体を有する発熱素子等の電気熱変換体によって液体を加熱して液体を吐出させるエネルギー発生手段を用いた記録方法等がある。

【００２２】その中でも熱エネルギーによって液体を吐出させるインクジェット記録方法に用いられる記録ヘッドは、記録用の液滴を吐出して吐出用液滴を形成するための液体吐出口（オリフィス）を高密度に配列することができるために高解像度の記録をすることが可能である。またその中でも電気熱変換体をエネルギー発生手段として用いた記録ヘッドは、コンパクト化も容易であり、且つ最近の半導体分野における技術の進歩と信頼性の向上が著しいＩＣ技術やマイクロ加工技術の長所を十二分に活用でき、高密度実装化が容易で、製造コストも安価なことから有利である。

【００２３】記録ヘッド15はキャリッジ17に搭載されており、キャリッジ17には、矢印Ａ方向である記録シートＰの搬送方向と直交する方向に、図示しない駆動モータによって往復移動可能にする為のガイド軸20が設けられている。そして、搬送ローラ13および従動ローラ14によりプラテン16上に搬送された記録シートＰに対して記録ヘッド15を記録シートＰの幅方向に走査してインク画像を記録する。

【００２４】また、記録ヘッド15は、記録ヘッドの記録シートＰに対向する面と記録シートＰの記録面との距離が、記録シートＰの厚さに対応して適切に保てるように移動可能になっている。

【００２５】（排出手段）記録部10の下流側に、搬送ローラ13と共に図示しない搬送モータによって回転する排出手段である排送ローラ18が設けられている。該排送ローラ18には拍車19が図示しないバネにより排送ローラ18に付勢され、排送ローラ18に従動するよう構成されている。排送ローラ18および拍車19は協動して、記録が実施された記録シートＰの記録面を汚すことなく、記録シートＰを排出保持部材７の水平支持部７ａ上に排出する。この排送ローラ18と拍車19のニップ部を、排出部11とする。

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【００２６】排出保持部材７は、排出部11により排出された記録シートＰを保持する為のものであり、記録部10における記録シートＰの搬送方向と、排出部11による記録シートＰの排出方向が略等しくなるように水平支持部７ａを配置している。この水平支持部７ａは記録シートＰの幅方向全域に渡って形成される面であり、各種幅の記録シートＰが排出された場合も、幅方向に位置の変化させることなく該記録シートＰを保持できる構成となっている。

【００２７】また、搬送部９から水平支持部７ａの排出部11側端部までの距離Ｌは、仕様範囲内の記録シートＰの内、搬送方向の長さが最も短い記録シートＰの搬送方向長さの略半分より短く設定することが望ましい。例えば、150㎜の長さの記録シートＰが仕様範囲内の最も短い記録シートである場合には、距離Ｌは75㎜より短く設定することが望ましい。これは記録シートＰが短すぎて、搬送部９を記録シートＰの後端が通過した時、記録シートＰの先端が水平支持部７ａに到達しない為に発生する記録シートＰの後端部の持ち上がりを防ぐ為である。

【００２８】排出保持部材７の両脇には排出サイドガイド７ｂが設けられており、記録シートＰが幅方向へずれて落ちてしまうことを防止する為のものである。また、排出保持部材７の排出部11側の端部には、該端部から排出部11に向かって下降する傾斜面を有する侵入防止部材８が取り付けられて、排出時に記録シートＰの先端部が垂れ下がって水平支持部７ａの裏側に侵入しないように構成されている。

【００２９】次に、インクジェット記録装置における記録シートＰの排出動作について図２乃至図５を用いて説明する。記録シートＰは普通紙などの腰の弱いシートである。

【００３０】図２に示すように記録シートＰの先端が排出部11を通過した状態に於いて、その先端は自重により垂れ下がるが、しかし侵入防止部材８の案内により水平支持部７ａへと進行する。そして図３に示すように、記録シートＰの先端部が水平支持部７ａによって支持されつつ画像の記録が進行する。

【００３１】さらに画像の記録が進行すると、図４に示すように記録シートＰの後端が搬送部９を通過し、記録シートＰの後端は上方に対する規制を失うこととなる。しかし、記録部10、排出部11、水平支持部７ａが略同一平面内に配置されていることから、記録シートＰの後端

が傾斜することなく記録を継続することが可能となっている。

【００３２】その後図５に示すように記録シートＰの後端が排出部11を通過すると、記録シートＰの後端部は排送ローラ18による搬送と自重により侵入防止部材８上に落下し、侵入防止部材８の傾斜に沿って垂れ下がることになる。

【００３３】そして、連続して次の記録シートＰが排出されてきた場合にも上記と同ように排出される為、先に排出された記録シートＰの記録面に後に排出する記録シートＰの先端が接触するまでに時間を要し、先に排出された記録シートＰのインクが乾く間を与えることができる。

【００３４】上記の如く構成することにより、記録シートＰの後端が搬送部９を通過した後に於いても、記録シートＰの後端が持ち上がることなく、従って記録シートＰと記録部10の干渉および記録精度を悪化させることなく記録を継続することを可能とする効果を得ることができる。

【００３５】また、後に排出する記録シートＰの先端により先に排出され排出保持部材７上に積載された記録シートＰの記録面を汚してしまうことを防止することが可能となった。

【００３６】また、各種幅の記録シートＰに応じた排出保持部材７の位置調整が不要となり、汎用性、操作性を向上させる効果を得た。

【００３７】また、排出部11と略等しい高さに形成した水平支持部７ａを備えた排出保持部材７であっても、普通紙など腰の弱い記録シートＰの場合には、排出保持部材７上への排出スタックが可能になる効果を得た。

【００３８】なお、上述した記録シートＰの排出動作は普通紙など腰の弱い記録シートＰの場合であり、腰の強い記録シートＰの排出の場合には、記録シートＰの先端部および後端部の垂れ下がりが発生することなく記録シートＰの排出が終了する。すなわちこの場合には、先に排出した記録シートＰの後端部を後続の記録シートＰの先端で押し出すか、若くは１枚ずつ記録シートＰを排出保持部材７から取り除くことになる。しかし、排出保持部材７上への排出スタック以外の点に関しては、上述したのと同様の効果を得ることができる。

【００３９】また、上述した構成に於いては排出保持部材７と侵入防止部材８を別部材で構成したが、２つの部材を一体成形して同一部材とする構成にしても同様の効果を得ることができる。

【００４０】［第２実施形態］次に、インクジェット記録装置の第２実施形態について、図６乃至図９を用いて説明する。インクジェット記録装置の概略構成は第１実施形態と同様であり、説明の重複する部分については同一の符号を付して説明を援用し、排出手段の構成を中心に説明する。図６は第２実施形態に係る記録装置の侵入防止部材が第１の待機状態にある時の断面図、図７は第２実施形態に係る記録装置の侵入防止部材が第２の待機状態にある時の断面図、図８は待機状態の切換えシーケンスを示すフローチャート、図９は第２実施形態に係る侵入防止部材が第１の待機状態に設定される記録シートとして登録したテーブルの内容を示す図である。

【００４１】本実施例に係る記録装置には、前方の上方に排出した記録シートＰを保持する排出保持部材21が設けられている。該排出保持部材21は上記第１実施形態に示した排出保持部材７と略同様の構成を成しているが、後述する侵入防止部材22の回転中心となる回転軸23が嵌合する回転中心21ｃを備える点において相違する。

【００４２】侵入防止部材22は排出保持部材21の装置本体１側に配置される略板状の部材であって、回転中心21ｃに嵌合された回転軸23により、該排出保持部材21に回動可能に軸支されている。また侵入防止部材22の下方には回転軸25を回転中心とする待機状態切換え部材24が設けられている。待機状態切換え部材24は一体に構成された駆動ギア26を図示しない切換えモータの回転によって回動させることによりカムとして動作し、作用部24ａにより侵入防止部材22を回動させて支持することにより、位置の切換えを実施することができる。

【００４３】上記構成によって侵入防止部材22を、水平支持部21ａから下方に傾斜する第１の待機状態と、水平支持部21ａと略水平に支持する第２の待機状態に切換わる構成としたものである。すなわち第１の待機状態にある時は上記第１実施形態と同様、水平支持部21ａの裏側に記録シートＰが侵入することを防止することができる。また第２の待機状態にある時は、記録部10、排出部11、侵入防止部材22が略同一平面内に配置されることとなり、侵入防止部材22が水平支持部21ａを延長する如く配置されることとなる。

【００４４】次に、本実施例に係る装置本体１における記録シートＰの排出動作について図６、図７を用いて説明する。

【００４５】図６に示すように侵入防止部材22が第１の待機状態にある場合に於いては、侵入防止部材22は第１実施形態にて述べた状態と同一の状態となっている。従って排出動作に関しては第１実施形態にて述べた動作と同一であり、同様の効果を得ることができる。

【００４６】また図７に示すように侵入防止部材22が第２の待機状態にある場合に於いては、排出部11に侵入防止部材22の先端が近接し、且つ記録部10、排出部11、及び侵入防止部材22が略同一平面となるよう配置されるため、記録シートＰの先端部が垂れ下がることなく排出されることになる。

【００４７】ここで、上記第１実施形態に於いては、記録シートＰの先端が水平支持部７ａに到達しないことにより記録シートＰの後端部が持ち上がってしまうことを防ぐために、距離Ｌを、仕様範囲内の記録シートＰのう

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ち搬送方向の長さが最も短い記録シートＰの搬送方向長さの略半分より短く設定した。しかし、本実施例に示すごとき構成にすることにより、距離Ｌを任意に設定することが可能となった。

【００４８】次に、侵入防止部材22の待機状態切換え動作について図８、図９を用いて説明する。

【００４９】図示しないホストコンピュータなどから記録指示命令が入力指示されると、図８の待機状態切換えシーケンスが開始される。ステップＳ１に於いては、記録シートとして入力指示された記録シートが、侵入防止部材22の待機状態を第１の待機状態に設定してもよい、若しくは記録シートの搬送方向長さの半分の長さが距離Ｌより長い記録シートであると予め登録（図９）された記録シートであるか否かの判断が実施される。

【００５０】ステップＳ１により登録された記録シートであると判断された場合には、ステップＳ２へと移行する。ステップＳ２に於いて、侵入防止部材22が第１の待機状態にあるか否かの判断が実施される。そして、ステップＳ２に於いて侵入防止部材22が第１の待機状態にあると判断された場合には、待機状態切換えシーケンスは終了する。

【００５１】ステップＳ２により侵入防止部材22が第１の待機状態でないと判断された場合には、ステップＳ３へと移行し、図示しない切換えモータの駆動により待機状態切換え部材24を回動させて、侵入防止部材22を第１の待機状態に切換えた後、待機状態切換えシーケンスを終了する。

【００５２】しかる後に画像記録作業が開始され、侵入防止部材22が第１の待機状態の位置にある為に、上記第１実施形態にて述べた如き一連の排出動作が実施される。

【００５３】また、ステップＳ１により登録された記録シートでないと判断された場合には、ステップＳ４へと移行する。ステップＳ４に於いて侵入防止部材22が第２の待機状態にあるか否かの判断が実施され、該侵入防止部材22が第２の待機状態にあると判断された場合には待機状態切換えシーケンスが終了する。

【００５４】ステップＳ４により侵入防止部材22が第２の待機状態でないと判断された場合には、ステップＳ５へと移行し、図示しない切換えモータの駆動により待機状態切換え部材24を回動させて、侵入防止部材22を第２の待機状態に切換えた後、待機状態切換えシーケンスを終了する。

【００５５】しかる後に画像記録作業が開始され、侵入防止部材22が第２の待機状態の位置にある状態にて、排出動作までの一連の動作が実施される。

【００５６】以上説明したように、本実施例に係る記録装置は、侵入防止部材22の待機状態を切換えることを可能としたことにより、排出部11と水平支持部21ａの距離Ｌを切換えることができる。これにより第１実施形態と

10

同様の効果を得ることができると共に、記録シートＰの搬送方向長さの半分の長さが距離Ｌより短い場合に於いても、該記録シートＰの後端が搬送部９を通過した時にも記録シートＰの先端を支持することができ、記録シートＰの後端部が持ち上がることを防ぐことができる。

【００５７】これにより記録シートＰの後端が搬送部９を通過した後においても、記録シートＰと記録部10の干渉を起こしたり、記録精度を悪化させたりすることなく記録することを可能にする効果を得た。

【００５８】［第３実施形態］上記第２実施形態に於いては、侵入防止部材22の待機状態を第１の待機状態に設定しても良い記録シートを予め登録しておき、これと入力指示された記録シートを比較することにより侵入防止部材22の待機状態の切換えを行った。しかし、記録シートＰの搬送系路上であって搬送部９より搬送方向上流側に図示しないセンサー27を設け、該センサー27により記録シートＰの先端から後端までの長さを計測し、計測結果と距離Ｌとの比較により侵入防止部材22の待機状態の切換えを実施する構成としてもよい。

【００５９】また、通常侵入防止部材22を第１の待機状態に設定しておき、上記センサー27が記録シートＰの後端を検知した時に侵入防止部材22を第２の待機状態に切換え、排出動作完了後に再び侵入防止部材22を第１の待機状態に切換える構成としても、第２実施形態と同様の効果を得ることができる。

【００６０】なお、上記第２実施形態では、侵入防止部材22の回転中心となる回転軸23が嵌合する回転中心21ｃを排出保持部材21に設けたが、これは、インクジェット記録装置本体に設けても同様の効果を得ることができるということは勿論である。

【００６１】［第４実施形態］上述までの各実施形態に於いては、排出保持部材７，21上に形成する水平支持部７ａ，21ａを単一平面として説明したが、水平支持部７ａ，21ａを記録シートの幅方向に並設された複数のリブ状のもので形成するようにしても同様の効果を得ることができる。この時、水平支持部７ａまたは21ａの間隔は、インクジェット記録装置が対応している最小幅の記録シートの幅よりも小さくしておく必要がある。なお、水平支持部７ａまたは21ａの間隔は均一である必要がないということは勿論である。

【００６２】

【発明の効果】本発明によれば、安価で容易な構成により、記録媒体の後端が搬送ローラとその従動ローラのニップ部を通過した後も、記録媒体と記録手段の干渉および記録精度を悪化させることなく記録媒体へ記録することが可能になる効果を得た。また、先に排出保持部材上に排出した記録媒体に、連続して排出される記録媒体が接触して記録面を汚してしまうことの防止が可能になり、種々の記録媒体の全長に渡って、高画像品位を維持することが可能になる効果を得た。

【００６３】また、腰の弱い記録媒体である場合には、上記した効果に加えて排出保持部材上へスタックすることが可能になる効果を得た。

【００６４】また、記録媒体支持面が記録媒体の幅方向全域に渡って形成されている為、種々の幅の記録媒体に応じた幅方向の排出保持部材の位置調整をする必要がなくなり、汎用性、操作性を向上させる効果を得た。

【図面の簡単な説明】

【図１】第１実施形態に係る記録装置の外観斜視図である。

【図２】記録シート先端が水平支持部へ到達した状態を示す部分断面図である。

【図３】記録シートが水平支持部を進行する状態を示す部分断面図である。

【図４】記録シート後端が搬送ローラを通過した状態を示す部分断面図である。

【図５】記録シートが水平支持部に排出された状態を示す図である。

【図６】第２実施形態に係る記録装置の侵入防止部材が第１の待機状態にある時の断面図である。

【図７】第２実施形態に係る記録装置の侵入防止部材が第２の待機状態にある時の断面図である。

【図８】侵入防止部材の待機状態の切換えシーケンスを示すフローチャートである。

【図９】第２実施形態における侵入防止部材が第１の待機状態に設定される記録シートとして登録したテーブルの内容を示す図である。

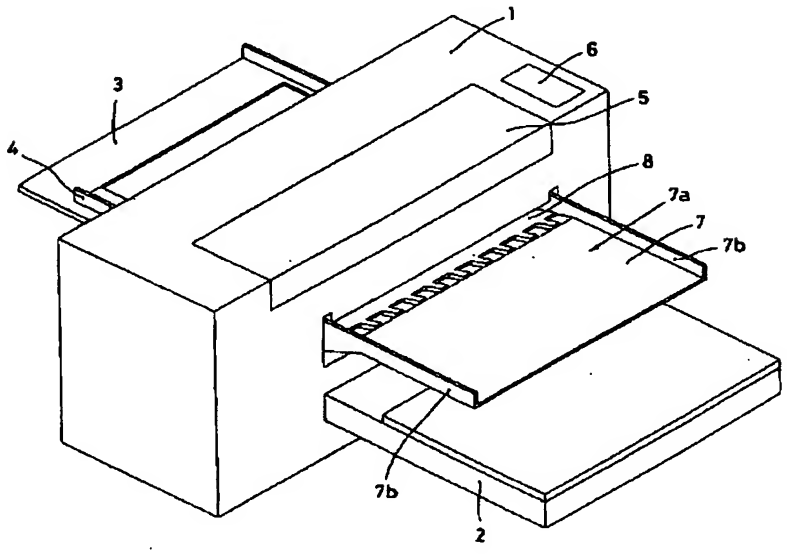
【符号の説明】

L　…距離

P　…記録シート

1　…装置本体
2　…給紙トレイ
3　…給紙台
4　…サイドガイド
5　…カバー
6　…操作パネル
7，21　…排出保持部材
7a，21a　…水平支持部
7b　…排出サイドガイド
8，22　…侵入防止部材
9　…搬送部
10　…記録部
11　…排出部
12　…ガイド
13　…搬送ローラ
14　…従動ローラ
15　…記録ヘッド
16　…プラテン
17　…キャリッジ
18　…排送ローラ
19　…拍車
20　…ガイド軸
21c　…回転中心
23　…回転軸
24　…待機状態切換え部材
24a　…作用部
25　…回転軸
26　…駆動ギア
27　…センサー

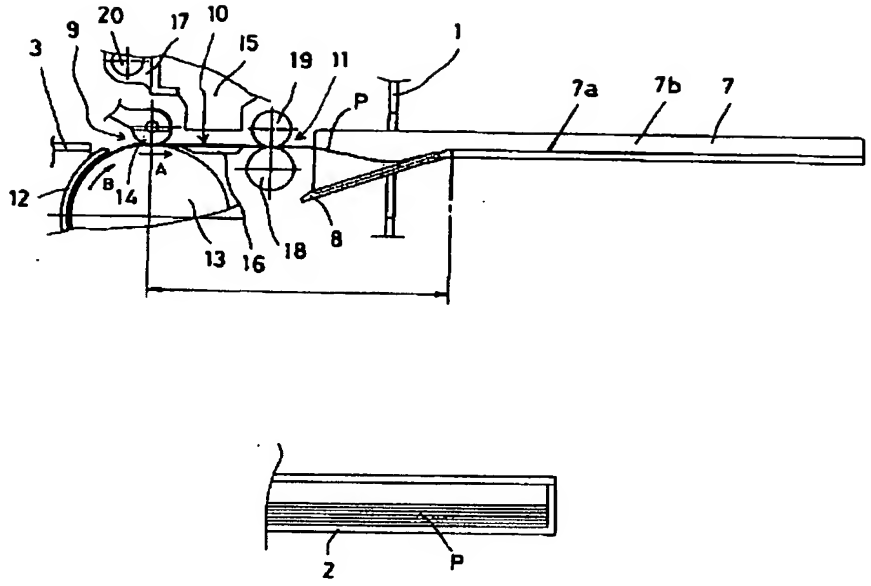
【図１】



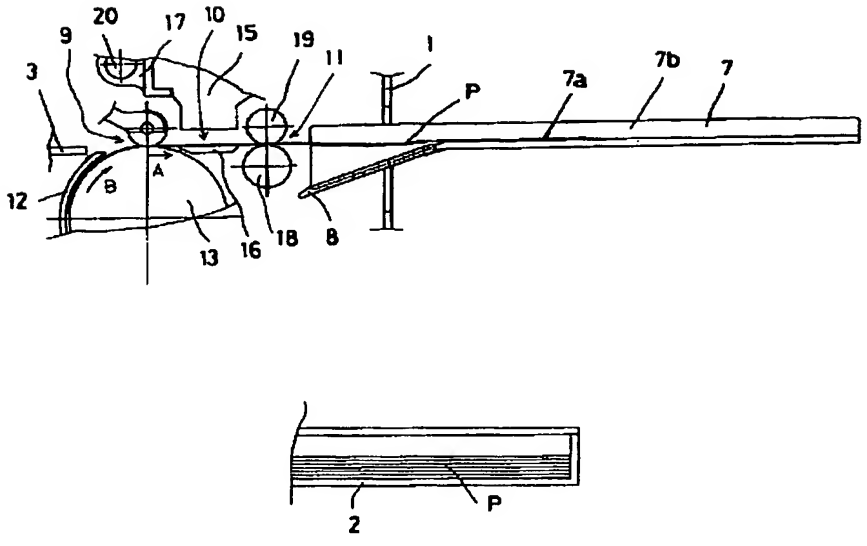
【図９】

登録シート
A３　縦
A４　縦・横
B４　縦
A５　縦・横
LETTER　縦・横
LEGAL　縦

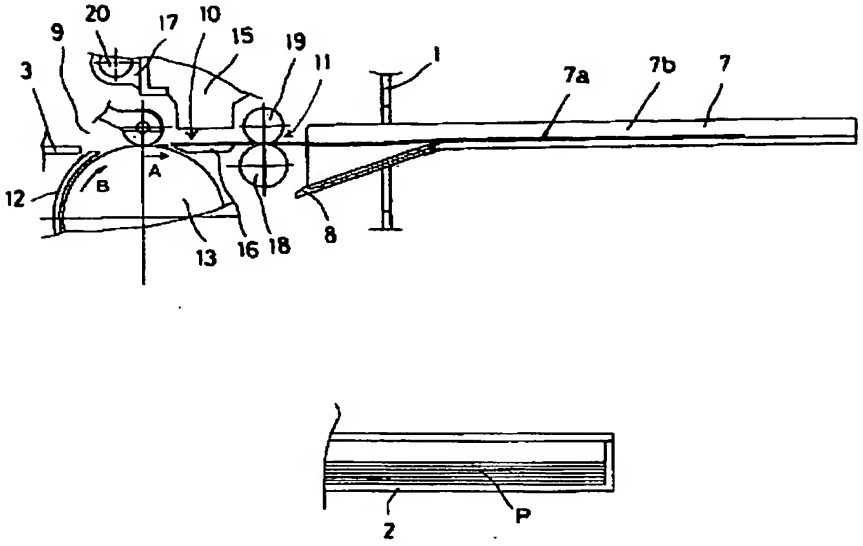
【図２】


20
17
10
15
19
11
1
3
9
P
7a
7b
7
12
B
14
A
13
16
18
8
2
P

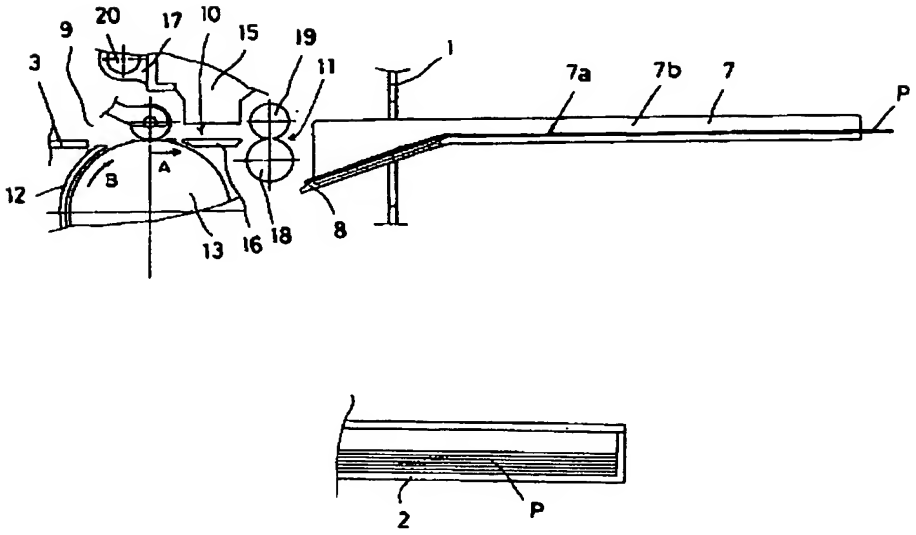
【図３】


20
17
10
15
19
11
1
9
3
P
7a
7b
7
12
B
A
13
16
18
8
2
P

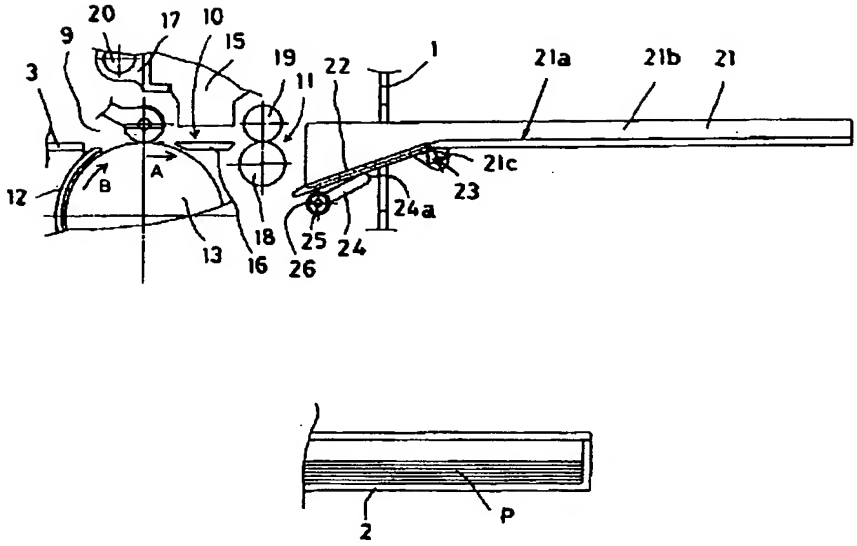
【図４】


20
17
10
15
19
11
9
3
1
7a
7b
7
A
B
12
13
16
18
8
2
P

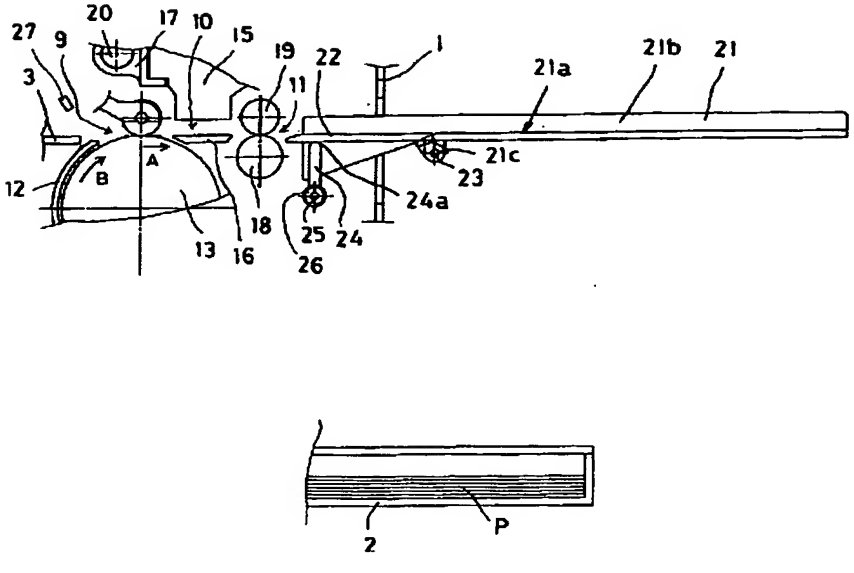
【図５】


20
17
10
15
19
11
9
3
1
7a
7b
7
P
A
B
12
13
16
18
8
2
P

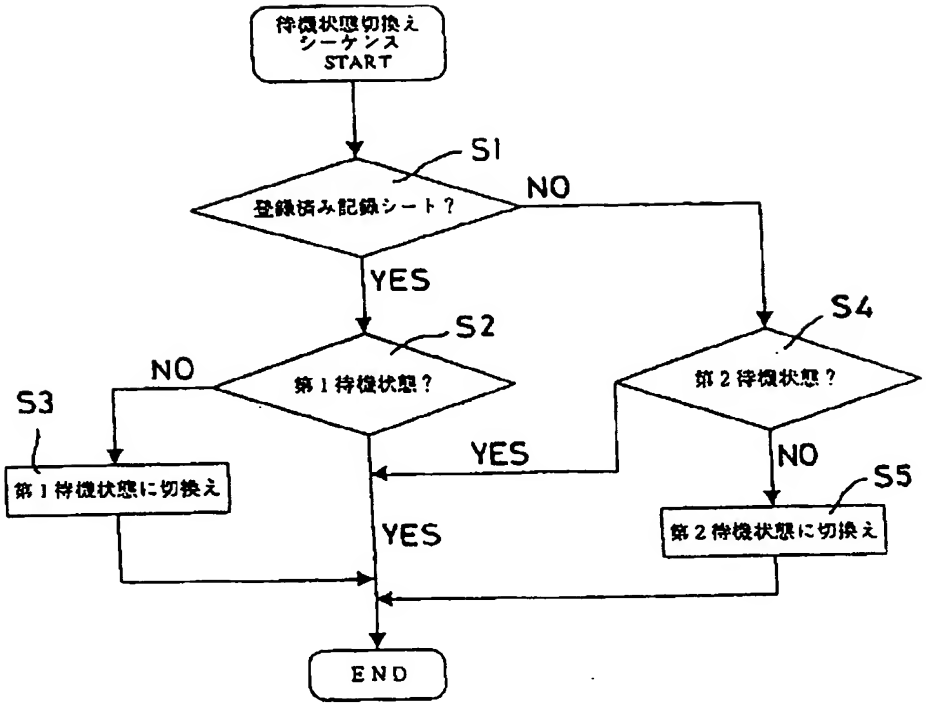
【図６】


20
17
10
9
15
19
11
22
1
21a
21b
21
3
21c
23
12
B
A
24a
18
25
24
13
16
26
2
P

【図７】


27
20
17
10
9
15
19
22
1
21a
21b
21
3
11
21c
23
12
B
A
24a
18
25
24
13
16
26
2
P

【図８】


待機状態切換え
シーケンス
START
S1
登録済み記録シート？
NO
YES
S2
第１待機状態？
NO
S3
第１待機状態に切換え
YES
S4
第２待機状態？
NO
S5
第２待機状態に切換え
YES
END